Case 3355

ORTHOCLADIINAE Kieffer, 1911 and *Orthocladius* van der Wulp, 1874 (Insecta, Diptera, CHIRONOMIDAE): proposed conservation of subfamilial name and fixation of type species

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Abstract. The purpose of this application, under Articles 23.9.3 and 81.1 of the Code, respectively, is to conserve the usage of the name ORTHOCLADIINAE Kieffer, 1911 for a well known group of non-biting midges, and to conserve the usage of the name *Orthocladius* van der Wulp, 1874 by fixation of *Chironomus oblidens* Walker, 1856 as the type species. The universally accepted name ORTHOCLADIINAE Kieffer, 1911 is threatened by its senior synonyms ERETMOPTERIDAE Kellogg, 1900 and CLUNIONINAE Kieffer, 1906. The type species of *Orthocladius* van der Wulp, 1874 requires fixation by the Commission, because neither the designated nominal species, *Chironomus sordidellus* Zetterstedt, 1838 (currently *Psectrocladius sordidellus*), nor the species so misidentified by Kieffer (1906) in the type-species designation, nor any of the species originally included in the genus is presently assigned to *Orthocladius*. In accordance with long-standing, unanimous interpretation in the literature on CHIRONOMIDAE, it is proposed that *Chironomus oblidens* Walker, 1856 be fixed as the type species of *Orthocladius*.

Keywords. Nomenclature; taxonomy; CHIRONOMIDAE; ORTHOCLADIINAE; ERETMOPTERIDAE; CLUNIONINAE; *Orthocladius*; *Eretmoptera*; *Clunio*; *Psectrocladius sordidellus*; *Orthocladius oblidens*; non-biting midges.

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1. The name ORTHOCLADIINAE has been in long-standing, universal use for one of the two most widely distributed and taxon-rich subfamilies of the highly diverse and ecologically important CHIRONOMIDAE (e.g. Sublette & Sublette, 1973; Freeman & Cranston, 1980; Cranston & Martin, 1989; Cranston & Martin in Evenhuis, 1989; Ashe & Cranston, 1990; Oliver et al., 1990; Spies & Reiss, 1996). The genus *Orthocladius* van der Wulp, 1874, currently comprising six subgenera (Sæther, 2005) and about 150 validly named species, and occurring in all major zoogeographic regions except Antarctica, ranks among the most important genera in its subfamily.

Conservation of the name ORTHOCLADIINAE

2. Kellogg (1900, p. 82) described 'an extraordinary new maritime fly', the new genus and species *Eretmoptera browni*, from tide pools on the rocky coast of central California, and proposed 'to establish for it a new family, which may be called the ERETMOPTERIDAE' (op. cit., p. 81). When the full metamorphosis of that species had become known, Aldrich (1905, p. 119) placed *E. browni* in CHIRONOMIDAE Newman, 1834 (see Spies, 2005).

3. Kieffer (1906a, p. 3; see also Kieffer, 1906b, pp. 314–316) placed *Eretmoptera* Kellogg, 1900 (p. 82) in the subfamily CLUNIONINAE Kieffer, 1906a (p. 3) (type genus *Clunio* Haliday, 1855, p. 62), presumably following the practice, not uncommon at the time, of naming family groups after the earliest-established genus included.

4. Kieffer (1911b, p. 345) proposed a 'groupe Orthocladiariae' in the subfamily CHIRONOMINAE (then 'TENDIPEDINAE', a name suppressed in Opinion 678, October, 1963). *Orthocladius* van der Wulp, 1874 is not among the genera of 'Orthocladiariae' to which species were assigned in Kieffer (1911b, pp. 345–348), but is used as valid on page 349 of that work. The name ORTHOCLADIARIAE is available because it certainly, from inference from the stem, was formed from *Orthocladius* (third example following Article 11.7.1.1 of the Code); thus, ORTHOCLADIINI and coordinate names are available from Kieffer (1911b). This recognition is in accordance with previous interpretations (Ashe, 1983, p. 4; Sabrosky, 1998, p. 227).

5. For several decades after Kieffer (1911b), either CLUNIONINAE was used as valid for a subfamily separate from ORTHOCLADIINAE (e.g. Edwards, 1929; Wirth, 1949; Goetghebuer & Lenz, 1950), or CLUNIONINI was used for a tribe within ORTHOCLADIINAE (e.g. Johannsen, 1937; Brundin, 1956). If the scope of a particular work included *Eretmoptera* Kellogg, this genus was invariably placed within a family-group taxon based on *Clunio* Haliday, 1855.

6. Strenzke (1960) considered *Clunio* and related genera, including *Eretmoptera*, to form a monophyletic '*Clunio* group' which he ranked 'within the tribe METRIOCNEMINI of the subfamily ORTHOCLADIINAE' (op. cit., p. 29). Sæther's (1977) analysis confirmed the composition and general phylogenetic relations of Strenzke's '*Clunio* group', but did not recognize any valid tribes or subtribes in ORTHOCLADIINAE, concluding that 'it is better at present to keep the subfamily undivided' (1977, p. 85). The latter opinion has been followed by the vast majority of recent authors, with very few exceptions (e.g. Coffman, 1978: Coffman & Ferrington, 1996 placing *Eretmoptera* in CLUNIONINI).

7. ERETMOPTERIDAE Kellogg, 1900 has not been used as valid since its original publication. Aldrich (1905), Townes (1945), and Sabrosky (1998) merely referred to the name. Spies (2005) noted that the Principle of Priority currently renders any junior synonym of ERETMOPTERINAE and ERETMOPTERINI invalid. CLUNIONINAE Kieffer, 1906 and/or CLUNIONINI have been used as valid, but not frequently recently, and never as senior synonyms of ORTHOCLADIINAE Kieffer, 1911 or ORTHOCLADIINI, respectively. Without any exception known to the present applicant, whenever *Eretmoptera* and/or *Clunio* have been placed in the same family-group taxon as *Orthocladius*, the name used as valid for that taxon has been ORTHOCLADIINAE or a coordinate name. Although the usage of the name ORTHOCLADIINAE was modified several times in the past (see e.g. Cranston, 1995, p. 49), this name has been used as valid continuously, abundantly, and nearly universally for about 50 years. The use of ERETMOPTERINAE Kellogg, 1900 or CLUNIONINAE Kieffer, 1906 instead of ORTHOCLADIINAE Kieffer, 1911 would threaten stability and universality and would cause confusion. It is proposed that the name ORTHOCLADIINAE Kieffer, 1911 be given precedence over ERETMOPTERINAE Kellogg, 1900 and/or CLUNIONINAE Kieffer, 1906 whenever their respective type genera are placed within the same family-group taxon.

Conservation of usage of the name *Orthocladius*

8. The genus name *Orthocladius* and five other names still being used as valid for chironomid genera (*Camptocladius, Cricotopus, Eurycnemus, Metriocnemus, Tanytarsus*) were each mentioned first in two works by van der Wulp (1874a, 1874b) that must be considered as published simultaneously (Barendrecht & Kruseman, 1957; Spies, 1999). Van der Wulp (1877) himself referred all six genus names to both those works, respectively, without indicating any publication priority. The criteria for availability of all six genus names were met in both 1874 works. No type species of *Orthocladius* was fixed in either 1874 paper, but ten available species names were included in the genus by van der Wulp (1874b); see para. 17.

9. According to Code Article 24.2.2, precedence between van der Wulp's (1874a, 1874b) simultaneously published name pairs may be decided by the First Reviser. However, no author known to the present applicant has acted as First Reviser in this case by citing any pair of those genus names of van der Wulp's, or his two 1874 works, together and selecting from them. Of the two works, van der Wulp (1874b) contains much more elaborate taxon descriptions, includes names of species included for more of the six genera, and has been referred to almost exclusively during the past 130 years. Consequently, the genus names *Camptocladius*, *Cricotopus*, *Eurycnemus*, *Metriocnemus*, *Orthocladius*, and *Tanytarsus* as published by van der Wulp (1874b) are here selected as taking precedence over the respective corresponding, identical names (for respectively identical taxon concepts) as published by van der Wulp (1874a).

10. Kieffer (1906a) divided *Orthocladius* into four subgenera, and (p. 26) designated *Chironomus sordidellus* Zetterstedt, 1838 (p. 814) as the type species of the nominotypical subgenus. He did not provide a taxonomic definition of his interpretation of *Chironomus sordidellus* Zetterstedt, but a description can be found in Kieffer (1906b, pp. 333–334). There, specimens that he identified as '*O. sordidellus*' were considered so similar to *O. muscicola* Kieffer, 1906(b) (currently *Bryophaenocladius muscicola*), that 'the description given by Zetterstedt could apply just as well' to both these species (1906b, p. 333). Several morphological characters that Kieffer gave for '*O. sordidellus*', or for it and *O. muscicola* combined, are incompatible with the widely accepted usage of *Orthocladius* of recent decades (e.g. Brundin, 1956; Soponis, 1977; Cranston et al., 1989; Sæther, 2004, 2005). Kieffer (1906b) described the adult female antenna as comprising six flagellomeres in both '*O. sordidellus*' and *O. muscicola*, and as carrying trifid (*O. muscicola*) or bifid ('*O. sordidellus*') sensilla chaetica. In contrast, Soponis (1977, p. 8) and Sæther (2004) record five flagellomeres for all female *Orthocladius*, and do not mention or figure any antennal sensilla that would be branched rather than simple (e.g. Soponis, 1977, figs. 82a–m). Later publications by Kieffer (1911a, p. 521; 1923, pp. 139–140) confirm that he consistently considered the species that he misidentified as *O. sordidellus* (Zetterstedt) to belong to a distinct group of 'species of the genus *Orthocladius*, in which the females have the sensilla bifid or trifid on the flagellomeres' (Kieffer, 1923).

11. Coquillett (1910) proposed numerous type-species designations in a routine fashion for all genera in which he thought this had not been done. He acknowledged Kieffer's (1906a) designations concerning other chironomid genera (*Psilotanypus* and *Trichotanypus*; Coquillett, 1910, pp. 597 and 616, respectively), but for *Orthocladius* he proposed *Tipula stercoraria* De Geer (see para. 18) as the type species (op. cit.,

p. 581). Neither this nor any other work by Coquillett contains a taxonomic definition or discussion of *T. stercoraria*, which at that time in the Nearctic region had been reported from Greenland only (records summarized in Malloch, 1915). Therefore, the taxonomic species Coquillett (1910) meant to designate was the one listed as *Orthocladius stercorarius* by van der Wulp (1874b).

12. Edwards (1929, p. 335) examined what he considered 'the type' of *Chironomus sordidellus* Zetterstedt (in the J.W. Zetterstedt collection, Museum of Zoology, Lund University, Sweden), and found that in Kieffer's (1906a) classification the species would have belonged to *Orthocladius (Psectrocladius)* rather than to *O. (Orthocladius)*. This has been the basis of the long-standing, widespread and frequent usage of the species name, presently as *Psectrocladius (Psectrocladius) sordidellus* (Zetterstedt). Edwards (1929, p. 335) held that 'it is difficult to say precisely what Kieffer understood by *sordidellus*, but judging from the manner in which he restricted *Orthocladius* he may have had a species allied to' *Chironomus oblidens* Walker, 1856 (p. 180). Regarding Coquillett's (1910) type-species proposal, Edwards (1929) wrote: 'Again, it is impossible to be certain what species . . . van der Wulp understood by this name, but assuming it was one with white wings and dark halteres, it probably belonged to the group of *O. oblidens*, Walk. All things considered, therefore, it seems best to regard *O. oblidens* as the genotype, although it was not mentioned by name at the time of the erection of the genus'. In his classification, Edwards (1929) placed *O. oblidens* in *Spaniotoma (Orthocladius)* 'Group C (*Orthocladius* s. str.)'. At the same time, however, he noted for *S. (O.)* 'Group B' that in 'most of the known females the sense-bristles of the antennae are forked, a peculiar character not found in any other species of this subfamily' (1929, pp. 338, 340). Edwards's observation of a very limited distribution of split female antennal sensilla in the relevant genera still holds true today (present applicant's unpublished literature review; O.A. Sæther, X-H. Wang, pers. comms.). Unfortunately, the fact that Edwards (1929) thereby refuted his own interpretation of the type species of *Orthocladius* has never been noticed until the present application.

13. Goetghebuer (1940–1950) recognized the relevance of female antennal structure to the identification of Kieffer's '*Orthocladius sordidellus*', and established the name *O. kiefferulus* Goetghebuer, 1942 (p. 64) for Kieffer's misidentification. *Orthocladius kiefferiellus* Goetghebuer, 1943 in Goetghebuer (1940–1950, p. 68) is a variant spelling in the original work, that is here considered as incorrect (Article 23.1 of the Code—Principle of Priority). Goetghebuer (1942 in 1940–1950, pp. 63–64) placed *O. kiefferulus* in the subgenus *Orthocladius (Eudactylocladius)* Thienemann, 1935, with *Bryophaenocladius* Thienemann, 1934 inexplicably listed as a junior synonym. In recent decades, the name *Bryophaenocladius* Thienemann has been used as valid for a separate genus (e.g. Brundin, 1956), but the latter has not received the necessary taxonomic revision. *Bryophaenocladius kiefferulus* (Goetghebuer), the available name for the species misidentified as '*Orthocladius sordidellus*' by Kieffer (1906a), has been considered a nomen dubium (Ashe & Cranston, 1990).

14. While Goetghebuer (1940–1950) assigned the species that Kieffer misidentified as *Orthocladius sordidellus* to the correct genus-group taxon, he failed to realize the consequences to nomenclature of the genus *Orthocladius*. Ignoring the earlier designations by Kieffer (1906a) and Coquillett (1910), as well as the proposal by Edwards (1929), Goetghebuer (1942 in 1940–1950, p. 31) designated *O. brevicornis*

Kieffer, 1906 as the type species of *Orthocladius*, although *O. brevicornis* was not originally included in *Orthocladius* by van der Wulp (1874a, 1874b). *Orthocladius brevicornis* is currently considered a nomen dubium due to insufficient descriptions and missing type material. Moreover, Goetghebuer himself (1943 in 1940–1950, pp. 65–66) placed *O. brevicornis* in a subgenus of *Orthocladius* other than the nominotypical one.

15. Hardy (1960, p. 129) wrote: 'The designations of Coquillett and Goetghebuer are, of course, not valid and . . . it would seem that *O. sordidellus* Zetterstedt should be the type species of *Orthocladius*, unless the case is presented to the International Commission and a decision made to the contrary. Strict adherence to the Rules would in this case lead to still more confusion. . . . It appears that the only logical course is to follow Edwards in accepting *oblidens* as the type species, and it is hoped that one of the specialists in the group will present this case to the Commission and obtain their legal sanction for this action'.

16. In spite of Hardy's complete and correct analysis, subsequent authors informally accepted *O. oblidens* (Walker) as the type species of *Orthocladius*. This usage of *Orthocladius* has been effectively stable at least since Brundin (1956), although some authors (e.g. Ashe, 1983; Cranston & Martin, 1989; Oliver et al., 1990) referred to Coquillett's (1910) rather than Kieffer's (1906a) designation. On the other hand, no author has realized the nomenclatural consequences of Kieffer's misidentification of *Chironomus sordidellus* Zetterstedt, 1838 having been named and placed as *Bryophaenocladius kiefferulus* (Goetghebuer, 1942). No ruling by the Commission has previously been sought (Sabrosky, 1998; Spies, 2005).

17. None of the nominal species originally included in *Orthocladius* is still placed in the genus today. This has been verified for the present application, both from published sources (e.g. Ashe & Cranston, 1990; Sæther et al., 2000; Spies & Sæther, 2004) and from all material of the five relevant van der Wulp species that was recorded in any of his publications and still is preserved (at Zoological Museum, University of Amsterdam (ZMAN), The Netherlands, courtesy of Ben Brugge; no material was found at Naturalis National Museum of Natural History, Leiden, NL). In the order given by van der Wulp (1874b), the ten species originally included in *Orthocladius* [with respective current placement/status in square brackets] are: *Tipula stercoraria* De Geer, 1776 [= *Camptocladius stercorarius*]; *Chironomus dilatatus* van der Wulp, 1859 [syn. *Acricotopus lucens* (Zetterstedt, 1850)]; *Chironomus nigriventris* van der Wulp, 1859 [nomen dubium in *Cricotopus*]; *Chironomus pygmaeus* Meigen, 1818 [nomen dubium in CHIRONOMINAE]; *Chironomus sordidellus* Zetterstedt, 1838 [= *Psectrocladius sordidellus*]; *Chironomus thoracicus* Wiedemann in Meigen, 1818 [nomen dubium in CHIRONOMIDAE]; *Chironomus ictericus* Meigen, 1830 [= *Bryophaenocladius ictericus*]; *Orthocladius diversus* van der Wulp, 1874(b) [nomen dubium in ORTHOCLADIINAE]; *Orthocladius nanulus* van der Wulp, 1874(b) [nomen dubium in ORTHOCLADIINAE]; *Orthocladius albinervis* van der Wulp, 1874(b) [nomen dubium in *Psectrocladius (Psectrocladius)*].

18. In order to evaluate whether a satisfactory solution could be achieved by setting aside the type-species designation by Kieffer (1906a) and recognizing the one by Coquillett (1910; see para. 11), the present applicant has also examined four specimens (at ZMAN, ex coll. J. Kinker) that were very likely referred to by van der Wulp (1877, p. 279), as part of the basis for the only morphological description he

ever published for '*Orthocladius stercorarius*'. Although not all of these specimens are preserved sufficiently for species identification, it is certain that none of them belongs to *Orthocladius* as understood since Edwards (1929) or Brundin (1956). Nor are they conspecific with the nominal species in Coquillett's (1910) attempted designation, *Tipula stercoraria* De Geer. The latter has been accepted unanimously (since Edwards, 1929) as a senior synonym of *Tipula byssina* Schrank, 1803, which Coquillett (1910) has fixed as the type species of *Camptocladius* van der Wulp, 1874.

19. Although taxonomic circumscription of the genus *Orthocladius* has undergone some modifications (Sæther, 2004), *Chironomus oblidens* Walker has been universally accepted as the type species. In the last 50 years, despite the shortcomings of Edwards's (1929) informal argument, and in spite of various subsequent misunderstandings, Edwards's proposal of *Chironomus oblidens* Walker as the type species has been followed whenever the name *Orthocladius* was used as valid at any rank. This holds true for all applicable catalogues of CHIRONOMIDAE taxa (see references listed in para. 1; Ashe, 1983), for standard keys (e.g. Wiederholm, 1983, 1986, 1989; Langton, 1991; Sæther et al., 2000; Epler, 2001), taxonomic or phylogenetic reviews (e.g. Soponis, 1977; Rossaro et al., 2003; Sæther, 2005), as well as throughout countless pure and applied studies appearing worldwide year after year (for overviews see, e.g. Armitage et al., 1995, or *Zoological Record*).

20. Without a ruling by the Commission, a type species fixation for the genus *Orthocladius* van der Wulp under Article 70.3 either of *Chironomus sordidellus* Zetterstedt, 1838 (currently *Psectrocladius* (*Psectrocladius*) *sordidellus*) or of *Orthocladius kiefferulus* Goetghebuer, 1942 (currently *Bryophaenocladius kiefferulus*) would result in significant destabilization and confusion, because the name *Orthocladius* van der Wulp, 1874 would become the senior synonym of either *Psectrocladius* Kieffer, 1906 or *Bryophaenocladius* Thienemann, 1934, and an unused name would have to be introduced for the genus presently known as *Orthocladius*. Fixation of any of the originally included nominal species as the type species of *Orthocladius* would significantly upset nomenclature as well. Consequently, it is proposed that *Chironomus oblidens* Walker, 1856 be fixed as the type species of *Orthocladius* van der Wulp, 1874, to conserve the long and widely accepted usage of this genus name.

21. The International Commission on Zoological Nomenclature is accordingly asked:

(1) to use its plenary power:
   (a) to rule that the family-group name ORTHOCLADIINAE Kieffer, 1911 and other family-group names based on *Orthocladius* van der Wulp, 1874 are to be given precedence over ERETMOPTERINAE Kellogg, 1900 and other family-group names based on *Eretmoptera* Kellogg, 1900, as well as precedence over CLUNIONINAE Kieffer, 1906 and other family-group names based on *Clunio* Haliday, 1856 whenever the respective type genera are placed in the same family-group taxon;
   (b) to set aside all previous fixations of the type species for the nominal genus *Orthocladius* van der Wulp, 1874, and to designate *Chironomus oblidens* Walker, 1856 as the type species of *Orthocladius* van der Wulp, 1874;

(2) to place on the Official List of Generic Names in Zoology the following names:
   (a) *Orthocladius* van der Wulp, 1874(b) (gender: masculine), type species *Chironomus oblidens* Walker, 1856, as ruled in (1)(b) above;

(b) *Eretmoptera* Kellogg, 1900 (gender: feminine), type species *Eretmoptera browni* Kellogg, 1900, by original designation and monotypy;

(c) *Clunio* Haliday, 1855 (gender: masculine), type species *Clunio marinus* Haliday, 1855, by monotypy;

(3) to place on the Official List of Specific Names in Zoology the name *oblidens* Walker, 1856, as published in the binomen *Chironomus oblidens* (specific name of the type species of *Orthocladius* van der Wulp, 1874);

(4) to place on the Official List of Family-Group Names in Zoology the following names:

(a) ORTHOCLADIINAE Kieffer, 1911 (type genus *Orthocladius* van der Wulp, 1874), with the endorsement that it and other family-group names based on *Orthocladius* are to be given precedence over ERETMOPTERINAE Kellogg, 1900 and other family-group names based on *Eretmoptera* Kellogg, 1900, and over CLUNIONINAE Kieffer, 1906 and other family-group names based on *Clunio* Haliday, 1855 whenever the respective type genera are placed in the same family-group taxon;

(b) ERETMOPTERINAE Kellogg, 1900 (type genus *Eretmoptera* Kellogg, 1900), with the endorsement that it and other family-group names based on *Eretmoptera* are not to be given priority over ORTHOCLADIINAE Kieffer, 1911 and other family-group names based on *Orthocladius* van der Wulp, 1874 whenever their type genera are placed in the same family-group taxon;

(c) CLUNIONINAE Kieffer, 1906 (type genus *Clunio* Haliday, 1855), with the endorsement that it and other family-group names based on *Clunio* are not to be given priority over ORTHOCLADIINAE Kieffer, 1911 and other family-group names based on *Orthocladius* van der Wulp, 1874 whenever their type genera are placed in the same family-group taxon.

References

Aldrich, J.M. 1905. A catalogue of North American Diptera. *Smithsonian Miscellaneous Collections*, **46**: 1–680.

Armitage, P.D., Cranston, P.S. & Pinder, L.C.V. (Eds.). 1995. *The Chironomidae. The biology and ecology of non-biting midges*. xii, 572 pp. Chapman & Hall, London.

Ashe, P. 1983. A catalogue of chironomid genera and subgenera of the world including synonyms (Diptera: Chironomidae). *Entomologica scandinavica Supplement*, **17**: 1–68.

Ashe, P. & Cranston, P.S. 1990. Family Chironomidae. Pp. 113–355 *in* Soós, A. & Papp, L. (Eds.), *Catalogue of Palaearctic Diptera*, vol. 2. 499 pp. Akadémiai Kiadó, Budapest.

Barendrecht, G. & Kruseman, G., Jr. 1957. A propos du centenaire du Tijdschrift voor Entomologie. *Tijdschrift voor Entomologie*, **100**: 1–4.

Brundin, L. 1956. Zur Systematik der Orthocladiinae (Dipt., Chironomidae). *Reports from the Institute of Freshwater Research, Drottningholm*, **37**: 5–185.

Coffman, W.P. 1978. Chironomidae. Pp. 345–376 *in* Merritt, R.W. & Cummins, K.W. (Eds.), *An introduction to the aquatic insects of North America*. 441 pp. Kendall/Hunt, Dubuque.

Coffman, W.P. & Ferrington, L.C., Jr. 1996. Chironomidae. Pp. 635–754 *in* Merritt, R.W. & Cummins, K.W. (Eds.), *An introduction to the aquatic insects of North America. Third edition*. 4, 862 pp. Kendall/Hunt, Dubuque.

Coquillett, D.W. 1910. The type-species of the North American genera of Diptera. *Proceedings of the United States National Museum*, **37**: 499–647.

Cranston, P.S. 1995. Systematics. Pp. 31–61 *in* Armitage, P.D., Cranston, P.S. & Pinder, L.C.V. (Eds.), *The Chironomidae. The biology and ecology of non-biting midges*. xii, 572 pp. Chapman & Hall, London.

Cranston, P.S. & Martin, J. 1989. Family Chironomidae. Pp. 252–274 *in* Evenhuis, N.L. (Ed.), *Catalog of the Diptera of the Australasian and Oceanic Regions*. Bishop Museum Special Publication, **86**. 1155 pp. Honolulu.

Cranston, P.S., Oliver, D.R. & Sæther, O.A. 1989. The adult males of Orthocladiinae (Diptera: Chironomidae) of the Holarctic region—Keys and diagnoses. *Entomologica scandinavica Supplement*, **34**: 165–352.

Edwards, F.W. 1929. British non-biting midges (Diptera, Chironomidae). *Transactions of the Royal Entomological Society of London*, **77**: 279–430.

Epler, J.H. 2001. *Identification Manual for the larval Chironomidae (Diptera) of North and South Carolina. A guide to the taxonomy of the midges of the southeastern United States, including Florida*. Special Publication SJ2001–SP13. North Carolina Department of Environment and Natural Resources, Raleigh, NC, and St. Johns River Water Management District, Palatka, FL.

Evenhuis, N.L. (Ed.). 1989. Appendix I. Diptera of Antarctica and subantarctic islands. Pp. 797–804 *in* Evenhuis, N.L. (Ed.), *Catalog of the Diptera of the Australasian and Oceanic Regions*. Bishop Museum Special Publication, **86**. 1155 pp. Honolulu.

Freeman, P. & Cranston, P.S. 1980. Family Chironomidae. Pp. 175–202 *in* Crosskey, R.W. (Ed.), *Catalogue of the Diptera of the Afrotropical Region*. 1437 pp. British Museum (Natural History), London.

Goetghebuer, M. 1940–1950. Tendipedidae (Chironomidae). f) Subfamilie Orthocladiinae. A. Die Imagines. *In* Lindner, E. (Ed.), *Die Fliegen der palaearktischen Region*, vol. 3, family 13g. 208 pp., 24 pls. E. Schweizerbart, Stuttgart.

Goetghebuer, M. & Lenz, F. 1950. Tendipedidae (Chironomidae). h) Subfamilie Clunioninae. *In* Lindner, E. (Ed.), *Die Fliegen der palaearktischen Region*, vol. 3, family 13h. 23, 1 pp. E. Schweizerbart, Stuttgart.

Hardy, D.E. 1960. Diptera: Nematocera–Brachycera (except Dolichopodidae). Pp. 128–137 *in* Zimmerman, E.C. (Ed.), *Insects of Hawaii*, vol. 10. 368 pp. University of Hawaii Press, Honolulu.

Johannsen, O.A. 1937. Aquatic Diptera. Part III. Chironomidae: subfamilies Tanypodinae, Diamesinae, and Orthocladiinae. *Cornell University Agricultural Experiment Station Memoir*, **205**: 1–84.

Kellogg, V.L. 1900. An extraordinary new maritime fly. *Biological Bulletin*, **1**: 81–87.

Kieffer, J.J. 1906a. Diptera. Fam. Chironomidae. *In* Wytsman, P. (Ed.), *Genera Insectorum*, **42**: 1–78.

Kieffer, J.J. 1906b. Description de nouveaux Diptères Nématocères d'Europe. *Annales de la Société Scientifique de Bruxelles, 2e partie (Mémoires)*, **30**: 311–348.

Kieffer, J.J. 1911a. Bemerkungen zur Arbeit des Herrn Dr. Speiser über die Dipteren-Gruppe der sogenannten Heleinae. *Zoologische Jahrbücher, Abteilung für Systematik, Geographie und Biologie der Tiere*, **30**: 509–525.

Kieffer, J.J. 1911b. Les chironomides (Tendipedidae) de l'Himalaya et d'Assam. *Records of the Indian Museum*, **6**: 319–349.

Kieffer, J.J. 1923. Chironomides nouveaux ou peu connus de la région paléarctique (suite et fin). *Annales de la Société Scientifique de Bruxelles, 2e partie (Mémoires)*, **42**: 138–180.

Langton, P.H. 1991. *A key to pupal exuviae of West Palaearctic Chironomidae*. 386 pp. P.H. Langton, Huntingdon, U.K.

Malloch, J.R. 1915. The Chironomidae, or midges, of Illinois, with particular reference to the species occurring in the Illinois River. *Bulletin of the Illinois State Laboratory of Natural History*, **10**: 275–543.

Oliver, D.R., Dillon, M.E. & Cranston, P.S. 1990. *A catalog of Nearctic Chironomidae*. 89 pp. Publication 1857/B, Agriculture Canada Research Branch.

Rossaro, B., Lencioni, V. & Casalegno, C. 2003. Revision of West Palaearctic species of *Orthocladius* s. str. van der Wulp, 1874 (Diptera: Chironomidae: Orthocladiinae), with a new key to species. *Studi Trentini di Scienze Naturali—Acta Biologica*, **79**: 213–241.

Sabrosky, C.W. 1998. Family-group names in Diptera. PDF file on CD-ROM, *Diptera Data Dissemination Disk*. **1**. [11], 576 pp. North American Dipterists' Society, Washington, D.C. [Print version 1999: *Myia*, **10**: 1–576.]

Sæther, O.A. 1977. Female genitalia in Chironomidae and other Nematocera: morphology, phylogenies, keys. *Bulletin of the Fisheries Research Board of Canada*, **197**. viii, 209 pp.

Sæther, O.A. 2004. A review of *Orthocladius* subgen. *Symposiocladius* Cranston (Diptera: Chironomidae). *Aquatic Insects*, **25**: 281–317.

Sæther, O.A. 2005. A new subgenus and new species of *Orthocladius* van der Wulp, with a phylogenetic evaluation of the validity of the subgenera of the genus (Diptera: Chironomidae). *Zootaxa*, **974**: 1–56.

Sæther, O.A., Ashe, P. & Murray, D.A. 2000. Family Chironomidae. Pp. 113–334 *in* Papp, L. & Darvas, B. (Eds.), *Contributions to a manual of Palaearctic Diptera (with special reference to the flies of economic importance)*, Appendix vol. 604 pp. Science Herald, Budapest.

Soponis, A.R. 1977. A revision of the Nearctic species of *Orthocladius (Orthocladius)* van der Wulp (Diptera: Chironomidae). *Memoirs of the Entomological Society of Canada*, **102**: 1–4, 1–187.

Spies, M. 1999. Overlooked historic descriptions. *Chironomus Newsletter of Chironomid Research*, **12**: 24.

Spies, M. 2005. On selected family-group names in Chironomidae (Insecta, Diptera), and related nomenclature. *Zootaxa*, **894**: 1–12.

Spies, M. & Reiss, F. 1996. Catalog and bibliography of Neotropical and Mexican Chironomidae (Insecta, Diptera). *Spixiana Supplement*, **22**: 61–119.

Spies, M. & Sæther, O.A. 2004. Notes and recommendations on taxonomy and nomenclature of Chironomidae (Diptera). *Zootaxa*, **752**: 1–90.

Strenzke, K. 1960. Metamorphose und Verwandtschaftsbeziehungen der Gattung *Clunio* Hal. (Dipt.). *Annales Zoologici Societatis Zoologicae-Botanicae Fennicae 'Vanamo'*, **22**(4). 30 pp.

Sublette, J.E. & Sublette, M.S. 1973. Family Chironomidae. Pp. 389–422 *in* Delfinado, M. & Hardy, D.E. (Eds.), *A catalog of the Diptera of the Oriental region, vol. I, Suborder Nematocera*. [10], 618 pp. University of Hawaii Press, Honolulu.

Townes, H.K., Jr. 1945. The Nearctic species of Tendipedini [Diptera, Tendipedidae (= Chironomidae)]. *The American Midland Naturalist*, **34**: 1–206.

Walker, F. 1856. *Insecta britannica. Diptera*. Vol. III. xiv, 352 pp., pls. 21–30. Lovell Reeve, London.

Wiederholm, T. (Ed.). 1983. Chironomidae of the Holarctic region. Keys and diagnoses. Part 1. Larvae. *Entomologica scandinavica Supplement*, **19**: 1–457.

Wiederholm, T. (Ed.). 1986. Chironomidae of the Holarctic region. Keys and diagnoses. Part 2. Pupae. *Entomologica scandinavica Supplement*, **28**: 1–482.

Wiederholm, T. (Ed.). 1989. Chironomidae of the Holarctic region. Keys and diagnoses. Part 3. Adult males. *Entomologica scandinavica Supplement*, **34**: 1–532.

Wirth, W.W. 1949. A revision of the clunionine midges with descriptions of a new genus and four new species (Diptera: Tendipedidae). *University of California Publications in Entomology*, **8**: 151–182.

Wulp, F.M. van der. 1874a. [. . . over het geslacht *Chironomus* Meig. . . .] *Tijdschrift voor Entomologie*, **16**: lxix–lxxi.

Wulp, F.M. van der. 1874b. Dipterologische aanteekeningen. *Tijdschrift voor Entomologie*, **17**: 109–148.

Wulp, F.M. van der. 1877. *Diptera Neerlandica. De tweevleugelige insecten van Nederland*, vol. 1. xviii, 497 pp. Martinus Nijhoff, 's-Gravenhage.

Zetterstedt, J.W. 1838. Sectio tertia. Diptera. *Insecta lapponica*, **3**: 477–868.

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